Volume 47 1985

Numerische Mathematik

ditors

F.L. Bauer, München
R. Bulirsch, München
G.H. Golub, Stanford
A.S. Householder, Malibu
H.B. Keller, Pasadena
G.W. Stewart, College Park
J. Stoer, Würzburg
J. Todd, Pasadena
R.S. Varga, Cleveland
J.H. Wilkinson, Teddington
C. Zenger, München

ssociate Editors

I. Babuska, College Park
R.E. Bank, La Jolla
R.P. Brent, Canberra
F. Brezzi, Pavia
P.G. Ciarlet, Paris
L. Collatz, Hamburg
G.G. Dahlquist, Stockholm
M. Fiedler, Praha
N. Gastinel, Grenoble
W. Gautschi, Lafayette
R. Glowinski, Le Chesnay
W.B. Gragg, Lexington
M.H. Gutknecht, Zürich
G. Hämmerlin, München
P. Henrici, Zürich
H.-O. Kreiss, Pasadena
N.J. Lehmann, Dresden
G.I. Marchuk, Moskau
J. Meinguet, Louvain-la-Neuve
J. Moré, Argonne
M. Mori, Ibaraki-ken
K.W. Morton, Oxford
B.N. Parlett, Berkeley
D.J. Rose, Durham
J. Schmidt, Dresden
S. Sobolev, Moskau
H.J. Stetter, Wien
G. Strang, Cambridge
H. Werner, Bonn
O. Widlund, New York

ssistant Editor

W. Sautter, München

Springer-Verlag
Berlin · Heidelberg · New York · Tokyo

Numerische Mathematik

Copyright

Submission of a manuscript implies: that the work described has not been published before (except in the form of an abstract or as part of a published lecture, review, or thesis); that it is not under consideration for publication elsewhere; that its publication has been approved by all coauthors, is any, as well as by the responsible authorities at the institute where the work has been carried out; that, if and when the manuscript is accepted for publication, the authors agree to automatic transfer of the copyright to the (publisher, society); and that the manuscript will not be published elsewhere in any language without the consent of the copyright holders.
All articles published in this journal are protected by copyright, which covers the exclusive rights to reproduce and distribute the article (e.g., as offprints), as well as all translation rights. No material published in this journal may be reproduced photographically or stored on microfilm, in electronic data bases, video disks, etc., without first obtaining written permission from the publisher.
The use of general descriptive names, trade names, trademarks, etc., in this publication, even if not specifically identified, does not imply that these names are not protected by the relevant laws and regulations.
While the advice and information in this journal is believed to be true and accurate at the date of its going to press, neither the authors, the editors, nor the publisher can accept any legal responsibility for any errors or omissions that may be made. The publisher makes no warranty, express or implied, with respect to the material contained herein.

Special regulations for photocopies in the USA

Photocopies may be made for personal or in-house use beyond the limitations stipulated under Section 107 or 108 of U.S. Copyright Law, provided a fee is paid. This fee is US $ 0.20 per page, or a minimum of US $ 1.00 if an article contains fewer than five pages. All fees should be paid to the Copyright Clearance Center, Inc., 21 Congress Street, Salem, MA 01970, USA, stating the ISSN 0029-599X, the volume, and the first and last page numbers of each article copied. The copyright owner's consent does not include copying for general distribution, promotion, new works, or resale. In these cases, specific written permission must first be obtained from the publisher.

Other regulations

Authors publishing in this journal can, under certain conditions, benefit from library and photocopy fees collected by VG WORT. Authors of German nationality and those resident in the Federal Republic of Germany or Berlin (West), as well as citizens of Austria, Switzerland and member countries of the European Community, may apply to Verwertungsgesellschaft WORT, Abteilung Wissenschaft, Goethestraße 49, D-8000 München 2, for detailed information.

Printers: Universitätsdruckerei H. Stürtz AG, Würzburg

© Springer-Verlag Berlin Heidelberg 1985
Printed in Germany

Contents

Akrivis, G., Burgstaller, A.: Fehlerabschätzungen für nichtsymmetrische Gauß-Quadraturformeln. *Error Estimates for Nonsymmetric Gaussian Quadrature Formulae* . . . 535

Albrecht, P.: Numerical Treatment of O.D.Es.: The Theory of A-Methods 59

Andrew, A.L., Paine, J.W.: Correction of Numerov's Eigenvalue Estimates 289

Arnold, D.N., Wendland, W.L.: The Convergence of Spline Collocation for Strongly Elliptic Equations on Curves 317

Bakke, V.L., Jackiewicz, Z.: Stability of Reducible Quadrature Methods for Volterra Integral Equations of the Second Kind 159

Bellen, A., Zennaro, M.: Numerical Solution of Delay Differential Equations by Uniform Corrections to an Implicit Runge-Kutta Method 301

Berry, M.W., Heath, M.T., Kaneko, I., Lawo, M., Plemmons, R.J., Ward, R.C.: An Algorithm to Compute a Sparse Basis of the Null Space 483

Bourdeau, M., Pitre, A.: Tables of Good Lattices in Four and Five Dimensions . . . 39

Brass, H.: Eine Fehlerabschätzung für positive Quadraturformeln. *An Error Bound for Positive Quadrature Formulas* 395

Brezzi, F., Douglas, J., Jr., Marini, L.D.: Two Families of Mixed Finite Elements for Second Order Elliptic Problems 217

Bruch, J.C., Jr., Sloss, J.M.: Alternating Iteration and Elliptic Variational Inequalities 459

Burgstaller, A., s. Akrivis, G. 535

Casas, E.: L^2 Estimates for the Finite Element Method for the Dirichlet Problem with Singular Data 627

Comodi, M.I.: Approximation of a Bending Plate Problem with a Boundary Unilateral Constraint 435

Cortey-Dumont, P.: On Finite Element Approximation in the L^∞-Norm of Variational Inequalities 45

Dahlquist, G.: On Transformations of Graded Matrices, with Aplications to Stiff ODE's 363

Douglas, J., Jr., s. Brezzi, F., et al. 217

Eiermann, M., Niethammer, W., Varga, R.S.: A Study of Semiiterative Methods for Nonsymmetric Systems of Linear Equations 505

Gerlach, J., s. Guenther, R., et al. 355

Gohberg, I., Koltracht, I.: Numerical Solution of Integral Equations, Fast Algorithms and Krein-Sobolev Equation 237

Grigorieff, R.D.: Einige Stabilitätsungleichungen für gewöhnliche Differenzengleichungen in nichtkompakter Form. *Some Stability Inequalities for Ordinary Difference Equations in Noncompact Form* 565

Guenther, R., Hudspeth, R., McDougal, W., Gerlach, J.: Remarks on Parameter Identification. I 355

Gustafson, S.-Å.: Stable Convergence Acceleration Using Laplace Transforms 387

Haufe, C., s. Schmidt, J.W., et al. 413

Heath, M.T., s. Berry, M.W., et al. 483

Hoog, F.R. de, s. Hutchinson, M.F. 99
Hoyer, W., s. Schmidt, J.W., et al. 413
Hudspeth, R., s. Guenther, R., et al. 355
Hutchinson, M.F., Hoog, F.R. de: Smoothing Noisy Data with Spline Functions . . . 99
Jackiewicz, Z., s. Bakke, V.L. 159
Jacobsen, L.: Repeated Modifications of Limit k-Periodic Continued Fractions 577
Jerome, J.W.: An Adaptive Newton Algorithm Based on Numerical Inversion: Regularization as Postconditioner 123
Kaneko, I., s. Berry, M.W., et al. 483
Koltracht, I., s. Gohberg, I. 237
Kosler, R.: $W^{m,2}$-Fehlerabschätzungen für Galerkin-Näherungen schwach elliptischer quasilinearer Randwertprobleme $2m$-ter Ordnung. *$W^{m,2}$-Error-Estimates for Galerkin-Approximations of Weak Elliptic Quasilinear Boundary Value Problems of Order $2m$* 597
Kowalski, M.A., Werschulz, A.G., Woźniakowski, H.: Is Gauss Quadrature Optimal for Analytic Functions? 89
Lamp, U., Schleicher, K.-T., Wendland, W.L.: The Fast Fourier Transform and the Numerical Solution of One-Dimensional Boundary Integral Equations 15
Lawo, M., s. Berry, M.W., et al. 483
Lund, J.: Bessel Transforms and Rational Extrapolation 1
Marini, L.D., s. Brezzi, F., et al. 217
McDougal, W., s. Guenther, R., et al. 355
Menzel, R., Schwetlick, H.: Parametrization via Secant Length and Application to Path Following 401
Miller, V.A., Neumann, M.: A Note on Comparison Theorems for Nonnegative Matrices 427
Milner, F.A.: A Primal Hybrid Finite Element Method for Quasilinear Second Order Elliptic Problems 107
Nakao, M.T.: Error Estimates of a Galerkin Method for Some Nonlinear Sobolev Equations in one Space Dimension 139
Natterer, F.: Fourier Reconstruction in Tomography 343
Neumann, M., s. Miller, V.A. 427
Niethammer, W., s. Eiermann, M., et al. 505
Paine, J.W., s. Andrew, A.L. 289
Pitre, A., s. Bourdeau, M. 39
Plemmons, R.J., s. Berry, M.W., et al. 483
Rentrop, P.: Partitioned Runge-Kutta Methods with Stiffness Detection and Stepsize Control 545
Roman, J.: Calculs de complexité relatifs à une méthode de dissection emboîtée. *Complexity Bounds for a Nested Dissection Method* 175
Rye, E., Waadeland, H.: Reflections on Value Regions, Limit Regions and Truncation Errors for Continued Fractions 191
Schleicher, K.-T., s. Lamp, U., et al. 15
Schmidt, J.W., Hoyer, W., Haufe, C.: Consistent Approximations in Newton-Type Decomposition Methods 413
Schwetlick, H., s. Menzel, R. 401
Sloss, J.M., s. Bruch, J.C. 459

Utreras, F.I.: Smoothing Noisy Data Under Monotonicity Constraints Existence, Characterization and Convergence Rates 611
Varga, R.S., s. Eiermann, M., et al. 505
Waadeland, H., s. Rye, E. 191
Ward, R.C., s. Berry, M.W., et al. 483
Wendland, W.L., s. Arnold, D.N. 317
Wendland, W.L., s. Lamp, U., et al. 15
Werschulz, A.G., s. Kowalski, M.A., et al. 89
Woźniakowski, H., s. Kowalski, M.A., et al. 89
Zennaro, M., s. Bellen, A. 301

Covered by Zentralblatt für Mathematik and Current Mathematical Publications